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LEVEL:300L

COURSE:EPIDEMIOLOGY ASSIGNMENT

Question 1. Communicable Diseases Definition

Answer:

Communicable diseases are illnesses caused by infectious agents (pathogens) that can be transmitted from one person, animal, or object to another.

Example: Tuberculosis, Malaria, Measles, HIV/AIDS.

Causative Agents :

Communicable diseases are caused by:

1.Bacteria – e.g., Mycobacterium tuberculosis (Tuberculosis)

2.Viruses – e.g., HIV, Influenza virus, Measles virus

3.Fungi – e.g., Candida albicans (Candidiasis)

4.Protozoa – e.g., Plasmodium species (Malaria)

5.Helminths (worms) – e.g., Ascaris lumbricoides (Roundworm infection)

Modes of Transmission are:

(a.)Direct transmission – through physical contact (e.g., touching, kissing, sexual intercourse, droplet infection)

(b.)Indirect transmission – through contaminated objects, water, food, or vectors (e.g., mosquitoes, flies).

(c.)Airborne transmission – via droplets or dust particles suspended in air.

(d.)Vector-borne transmission – via insects such as mosquitoes, ticks, or flies.

Methods of Prevention and Control are:

1.Immunization (e.g., vaccination against measles, polio)

2.Personal hygiene (regular hand washing, safe food handling).

3.Environmental sanitation (proper waste disposal, clean water supply).

4.Vector control (use of insecticide-treated nets, fumigation).

5.Health education (awareness about disease transmission and prevention).

6.Isolation and quarantine of infected individuals.

Question 2. Explain the terms,Endemic, Epidemic and Pandemic

Answer

Endemic is a disease that is constantly present in a particular geographic area or population.

Example: Malaria is endemic in many tropical African countries.

Epidemic is a sudden increase in the number of cases of a disease above what is normally expected in a community or region.

Example: Ebola outbreak in West Africa (2014).

Pandemic:An epidemic that spreads across several countries or continents, usually affecting a large number of people.

Example: COVID-19 pandemic (2020–2022).

3. Incidence and Prevalence

Incidence:The number of new cases of a disease that occur in a specified population during a given period.

Example: If 50 new malaria cases occur among 1,000 people in a month, the incidence is 50 per 1,000 per month.

Prevalence:The total number of existing cases (both new and old) of a disease in a population at a given time.

Example: If 200 people out of 1,000 are living with malaria at a particular time, prevalence is 20%.

Importance in Epidemiology

Incidence helps identify risk and monitor new infections or outbreaks.

Prevalence shows the overall disease burden and is useful for planning health services and resources.

4. Measures for Controlling Communicable Diseases at the Community Level

Health education and awareness campaigns

Immunization programs (routine and mass vaccination)

Environmental sanitation (clean water, waste disposal, drainage)

Surveillance and early reporting of outbreaks

Isolation and treatment of infected individuals

Vector control (mosquito control, rodent control)

Provision of safe water and good nutrition

Legislation and health policies supporting disease control

5. Short Notes

a. Epidemiological Triangle

A model used to explain disease causation, consisting of three components:

Agent: The microorganism or pathogen that causes the disease.

Host: The human or animal that can get the disease.

Environment: External factors that allow the disease to be transmitted (e.g., climate, sanitation, population density).The interaction of these three determines disease occurrence.

b. Vehicle-Borne Transmission

Transmission of pathogens through contaminated materials or substances (vehicles) such as food, water, blood, or fomites.

Example: Cholera spread through contaminated water; hepatitis B through contaminated blood transfusion.

c. Point Prevalence and Period Prevalence

Point Prevalence: The proportion of people with a disease at a specific point in time.

Example: Number of people with HIV in July 30th, 2025.

Period Prevalence: The proportion of people with a disease during a specific time period (e.g., a month or year).

Example: Number of people with malaria from January to December 2024.